



FISH PASSAGE IMPROVEMENT PROJECT

at the Red Bluff Diversion Dam

September 2012

INTRODUCTION

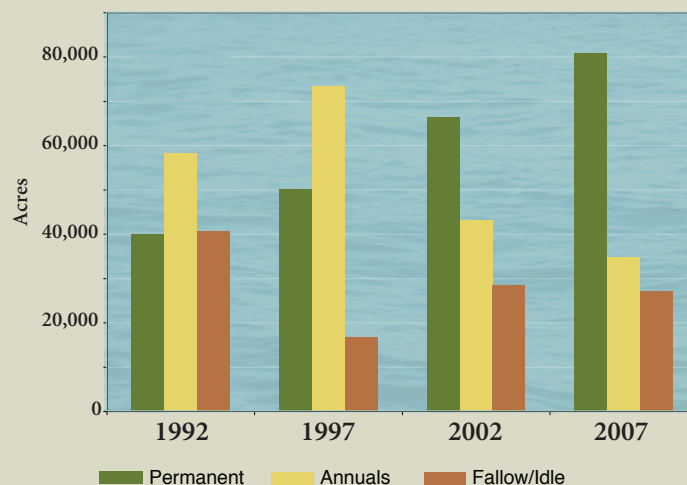
The Fish Passage Improvement Project at the Red Bluff Diversion Dam (RBDD) is a celebrated success, completed on schedule and under budget. It resolves a significant impediment to fish migration and provides a reliable water supply to over 150,000 acres of agricultural land in the Sacramento Valley. The project includes a pumping facility and state-of-the-art fish screen to replace operation of the dam. Total project cost is estimated at \$200M. The project received wide-spread support from a variety of entities, including local, state, and federal agencies, environmentalists, and water users.

The National Marine Fisheries Service's 2009 Biological Opinion for operation of the Central Valley Project required the RBDD gates to be raised year-round after 2011. The project was "shovel-ready" in 2009 and eligible to receive funding from the American Recovery and Reinvestment Act (ARRA). The project received over \$119M from ARRA, representing the largest Department of Interior economic recovery project in the nation. This investment created an estimated 1,200 jobs and protected an additional 6,000 existing jobs. Construction of the project commenced in the spring of 2010 and deliveries began in the spring of 2012. The cooperative effort of the Tehama Colusa Canal Authority, Reclamation, and the State of California was critical in securing adequate funding and achieving the mandated schedule. Successful completion of the project protected the ability to deliver irrigation to 150,000 acres of high-value crops in the Sacramento Valley.



WHO IS THE TEHAMA-COLUSA CANAL AUTHORITY?

Crop Type in the TCCA Service Area



TCCA is a Joint Powers Authority comprised of 17 irrigation districts in Tehama, Glenn, Colusa, and Yolo Counties.

TCCA operates and maintains the 140-mile Tehama-Colusa and Corning Canal agricultural water supply systems.

TCCA provides irrigation to 150,000 acres of agricultural land, over half of which is permanent crops, such as almonds, olives, and grapes.

Crops grown in the service area produce over \$250 million in crops and contribute over \$1 billion to the regional economy annually.

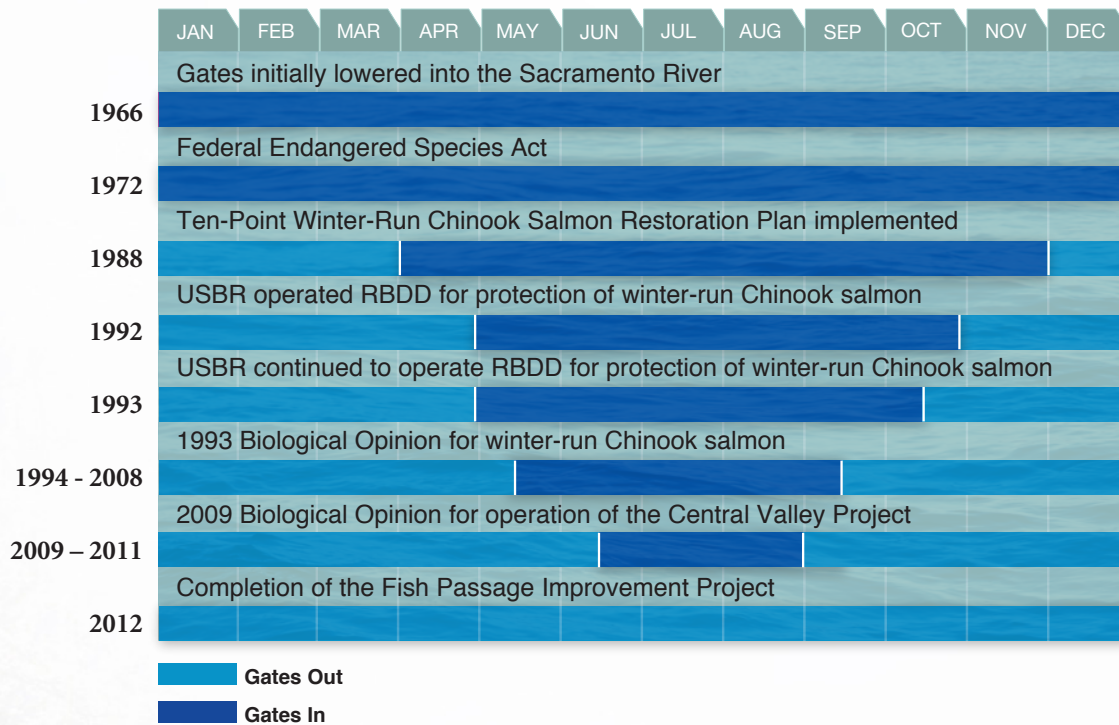
THE PROBLEM

The RBDD was completed in the mid-1960s. When the operable gates were lowered, the dam raised the surface level of the Sacramento River, enabling gravity diversion into the canals. Fish ladders constructed to allow passage during dam operation were unreliable and inefficient. As a result, the RBDD was a significant impediment to adult and juvenile fish migration. The main species of concern are winter- and spring-run Chinook salmon, Central Valley steelhead, and green sturgeon.

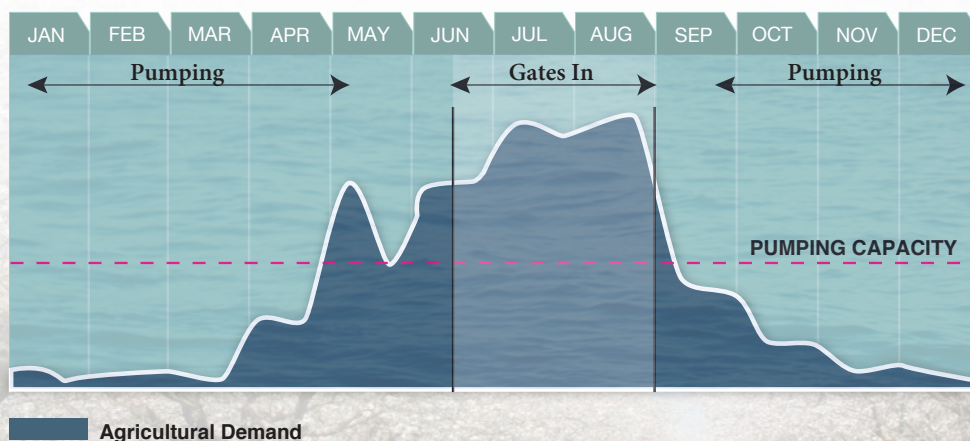
After the decline of winter-run Chinook salmon, the duration of annual gate operations began to steadily decrease from twelve months to two months. When the dam gates were raised, the Tehama-Colusa Canal Authority continued to deliver irrigation water through a series of short-term fixes, including a Temporary Pumping Plant, a Research Pumping Plant, seasonal pumps, and Stony Creek. The diversion capacity from these sources was not enough to meet year-round irrigation demand.



SELECT GATE OPERATIONS AT RED BLUFF DIVERSION DAM 1966 THROUGH 2012



AGRICULTURAL DEMAND COMPARED TO GATE OPERATIONS AND PUMPING CAPACITY AT RBDD



SITE PLAN FOR THE RED BLUFF PUMPING PLANT



THE SOLUTION

The Fish Passage Improvement Project is the culmination of over 40 years of efforts by various entities to find a balanced solution that improves fish passage and reliability of irrigation water deliveries. Highlights of the project include:

- **Selection of a Project:** The selected project included the construction of a pumping plant near the existing canal headworks with an initial installed capacity of 2,000 cfs and a footprint that will allow expansion to 2,500 cfs.
- **Completion of Environmental Review:** TCCA certified the Environmental Impact Report under the California Environmental Quality Act (CEQA) on June 4, 2008, and Reclamation signed the Record of Decision under the National Environmental Policy Act (NEPA) on July 16, 2008.
- **Construction:** Construction commenced in spring 2010. The groundbreaking event included, among others, Secretary of Interior Ken Salazar and former Governor Arnold Schwarzenegger.
- **Operation:** The project was completed on schedule and under budget. The new facility was substantially complete and began delivering water in May 2012. Full operation began in summer 2012.

The project received wide-spread support, including letters from the following:

- Senator Dianne Feinstein,
- Senator Barbara Boxer,
- Congressman Wally Herger,
- Congressman Mike Thompson,
- Congressman Dan Lungren,
- Congressman George Miller,
- Pacific Coast Federation of Fisherman's Associations,
- California Trout,
- Natural Resources Defense Council,
- Metropolitan Water District of Southern California,
- State Water Contractors,
- Tehama, Glenn, Colusa, Yolo County Farm Bureaus, and
- Tehama, Glenn, Colusa, Yolo County Boards of Supervisors.



Project Groundbreaking (March 23, 2010)



Overview of Fish Screen and Forebay Construction (November 2011)



HABITAT MITIGATION

Mitigation was required to compensate for unavoidable impacts to wetland and riparian habitats during construction of the fish screen and pumping plant. The mitigation site was selected and designed based on natural side channel habitats on nearby reaches of the Sacramento River. Side channel habitats are important because they increase instream and riparian habitat diversity by providing shaded cover and rearing areas for juvenile fish. Healthy rearing habitat may lead to higher juvenile growth rates, which in turn may improve juvenile fish survival. This is important for sensitive species, notably winter- and spring-run Chinook salmon, Central Valley steelhead, and green sturgeon.

The mitigation includes restoration of 32 acres of native, riparian habitat. Key features include an open-water channel and four native vegetation communities. The open-water channel is designed to maintain year-round connectivity to the Sacramento River. The native vegetation communities include emergent marsh, floodplain herbaceous, willow-riparian scrub, and mixed-riparian forest. Over time, these new communities will mature and connect with the existing habitat along the edges of the site.

The mitigation site is located directly across the river from the Red Bluff Pumping Plant in East Sand Slough (see Site Plan on page 3). Construction of the site commenced in 2012 and it is on-schedule to be complete in 2013.



Overview of Construction at the Mitigation Site (June 2012)

FOR MORE INFORMATION:

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Project Background: Red Bluff Diversion Dam was completed in 1964 as a part of the Sacramento Canals Unit of the Central Valley Project (CVP). The fish passage problem at RBDD was addressed in the Central Valley Project Improvement Act of 1992 - Public Law 102-575, Title 32 (CVPIA). Specifically, Section 3406(b)(10) authorizes and directs the Secretary of the Interior to develop and implement measures to minimize fish passage problems for adult and juvenile anadromous fish at the Red Bluff Diversion Dam. The Fish Passage Improvement Project at the Red Bluff Diversion Dam was developed to respond to this federal directive. The RBDD is owned by the U.S. Bureau of Reclamation and operated and maintained by the TCCA.